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NEW SERIES

Improved Punching and Shearing Machine.

Perhaps there is no more impressive exhibition of power made by any mechanism than that which is furnished by a large punching machine. A bar of cold wrought iron an inch in thickness is placed on a steel bed over a smooth hole, and a cast-steel punch is forced slowly through the bar, carrying a plug of iron before it into the hole below. It would seem as if a bar of cold iron an inch in thickness would stop the descent of any punch that could be made, but the framing is constructed of such strength, and the power is so multiplied, that the punch is easily pressed through the bar.

The annexed engraving represents one of these powerful machines, which is also designed for shearing metal; the cut being intended to illustrate certain improvements in this class of machines, invented by P. C. Perkins, of Waterford, N. Y.

The outside stationary framing, A A, is made of massive strength, and within this a movable frame, B B B, is carried up and down by the eccentrics, C C and D, upon the shaft, E; the eccentric, D, raising it, and the other two forcing it down. Extending across the frame, A, and firmly secured to it, are cross-bars, F F, having holes through their ends for the passage of the side pieces of the movable frame, B. These cross-bars are intended to support the iron intended to be punched or sheared, and they are accordingly perforated with holes to admit the punches, and are provided with the stationary blades, G G, of the shears. The movable blades, H H, of the shears, and the punches, I I, are attached to the under sides of the cross-bars, J J J, of the movable frame, so that as the latter is forced down, either or all of the punches and shears may be brought into action.

As a bar of iron is liable to be expanded laterally on being punched, unless it is confined between jaws, provision must be made for this requirement. Mr. Perkins' plan is this: Across the cross-bar, F, is firmly secured the iron block, K, to sustain one edge of the bar, which is pressed against it as the punch descends by the eccentrics, L L, an adjustable plate of the proper thickness being interposed between the eccentrics and the bar; the thickness of the plate varying with the width of the bar. The eccentrics are turned upon their fulcras as the punch comes down, by means of the levers, M M, the ends of which are connected with the gear wheel of the shaft, E, by the rod, N.

The advantage of this machine consists in the great variety of work that may be performed with it; as either one or any number of the punches and shears

may be used at the same time. The patent for this invention was granted, through the Scientific American Patent Agency, March 12th, 1861, and further information in relation to it may be obtained by addressing the inventor, P. C. Perkins, at Waterford, New York.

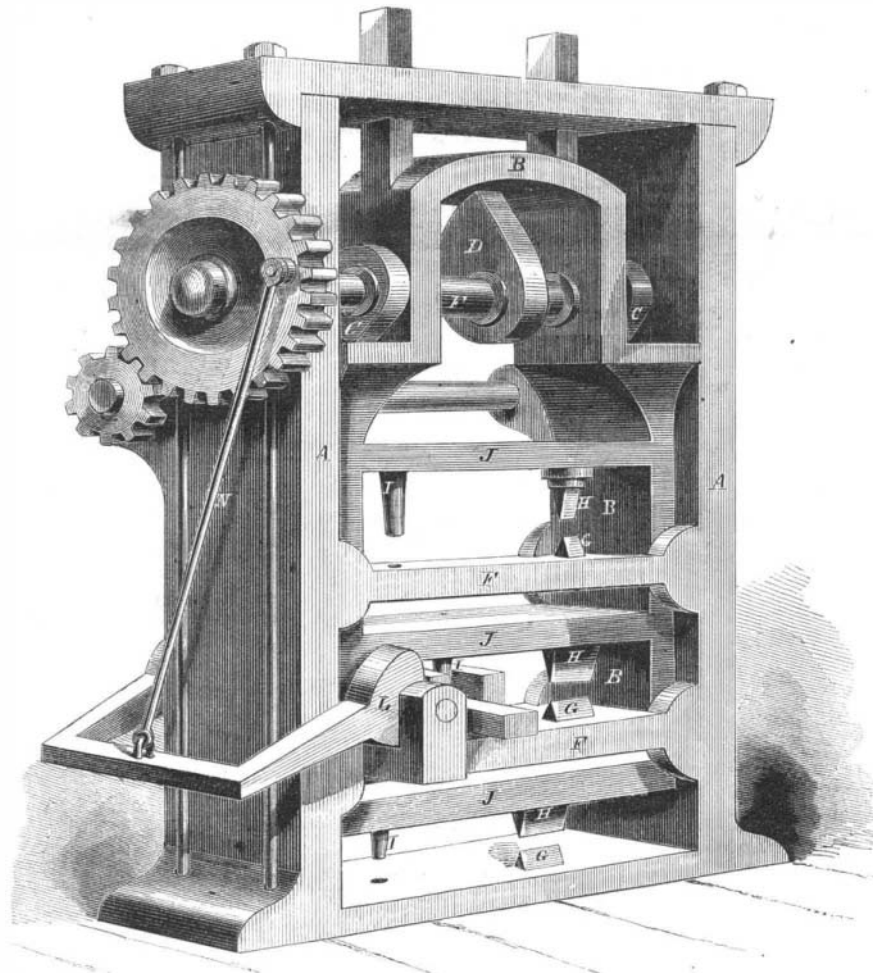
Dyeing and Printing Aniline Colors.

A most important patent has recently been taken out in England by R. H. Gratrix, of Salford, and M. P. Javal, of Thann, France, for preparing and applying aniline colors to textile fabrics. The specification of the patent is published in *Newton's London Journal*. It relates that hitherto, in the use of this class of

cloth—that is, cloth on which tin or other suitable metallic base has been precipitated by any of the well-known preparation processes—and impress upon this cloth the prepared or combined color, by means of printing blocks or engraved rollers. Or, as a modification of this improved process, they print upon the prepared cloth the desired pattern with a composition consisting of a thickened solution of gall nuts. By this means there is formed on those parts only of the surface which are to carry the colored pattern, a combination of tannin with oxyd of tin or other suitable base. This fabric is submitted to a bath composed by preference of a dilute acid solution of any desired color, derived from aniline or analogous substances.

By either of these processes a precipitate of the color employed is obtained on the fabric, and thus, in a comparatively inexpensive manner, the colored pattern is firmly fixed on the fabric.

In order to form compounds of tannin with the color to be employed, add to a solution of blue, purple or red color, or their combinations, derived from aniline and analogous substances, so much of a strong solution of galls (a newly-made solution being preferred) as is sufficient to precipitate all the coloring matter, or use the pure tannin, if the expense be not objectionable; then collect the precipitate upon a filter, and wash it, and dry it or not, as may be thought desirable. Re-dissolve this precipitate in acetic acid, alcohol, methylated spirits, or other suitable solvent, and thicken it with gum senegal or other suitable thickening, and it is then ready to be used for printing upon cloth prepared with salts of tin or other suitable mordant or mordants. When the fabric has been printed, it is to be steamed and then washed, with or without the use of soap, according to the color under operation; the red color more



PERKIN'S PUNCHING AND SHEARING MACHINE.

colors for producing patterns upon textile materials and fabrics, the mode adopted for fixing them has been to use albumen, lacterine or other azotized substances; but either from the cost of these materials, or the loose and fugitive character of the applied colors, no cheap and fast goods could be produced.

In order to obtain patterns by the aid of printing in the above-named class of colors, which patterns shall be chemically fixed, the patentees precipitate the color on the fabric in the following manner: They first form a compound of tannin with the color which is desired to be employed, and thicken it with gum senegal or other suitable thickening material; they then take the article to be operated upon, say, for example, the cloth known in the trade as "prepared

particularly requiring such treatment with soap.

THE locomotives on the New York Central Railroad are now no longer known by names, as they were formerly, when designated after places or individuals. Since this system has gone into disuse the locomotives are numbered. All new ones are given a number at the outset, and the old ones, as fast as repaired and painted, drop their names and assume a number.

Mr. D. K. CLARK, the author of the ablest and most comprehensive work on railway machinery yet published, has been appointed superintendent of fixed machinery in the building of the World's Fair, to be held in London in 1862.